

Reference:

I. Belle Ju.S. et all "Spectrometrical complex for control the internal irradiation of the staff." The program and abstracts of the 39 Conference on Nuclear Spectroscopy and Structure of Atomic Nuclei, Tashkent, 1989, 514.



UZ0001572

DEVICE FOR WATER DESALINATION

Haydarov R., Korovin S., Mironov V.

Institute of Nuclear Physics, Uzbekistan Academy of Science, Tashkent

Preparing of high quality potable water is an actual problem in some regions of Uzbekistan as well as in different countries of the World. Many different chemical and physical methods are used to solve this problem. One of them is based on distillation. But this method consumes energy very much and requires large volume of cooling water.

The purpose of this work is creating of cheap and low energy consuming water desalination technology based on using radioisotopes. In the article new water distillation technology is described. Radiator of ultrasonic waves and source of alpha - particles are suggested to use as the evaporator and ionisator of water aerosols, respectively.

The water is transformed into aerosols by means of the ultrasonic waves with the frequency about 2 MHz, the aerosols get a charge by means of the alpha-particles. A valve formed by a controlling electrical field leaks through itself only saturated vapour pressure of which at the aerosols surface is higher than at the flat surface. The vapour is transformed into liquid in the condensation camera.

Influence of the ultrasonic waves power and the controlling electrical field voltage on the salts concentration in the distilled water are given in the article. Test results show that the optimal ultrasonic waves power is 40 w and the controlling electrical field voltage is 50 v and the method efficiency decreases when the power and voltage increase higher these values.

As an example test results of 2 kg water contained 2-4 g/l of NaCl and CaCl₂ are given. The distillation process lasts 30 minutes, power is 20 w and the purification coefficient is 10⁴.